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RESEARCH ARTICLE

Mediterranean predatory flies of the Dolichopodidae (Diptera, Empidoidea) family from Bulgaria and Turkey

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Abstract

The paper presents information about some Mediterranean dolichopodid species and their habitat preferences, as well as distribution from the southern parts of Bulgaria and southeast Turkey. One new locality of *Sybistroma discipes* is given.

Keywords

Diptera, Dolichopodidae, distribution, habitats, *Chrysotus hubenovi*, *Hercostomus thraciensis*, *Sybistroma discipes*.

Introduction

The family Dolichopodidae (also called Long-legged flies) belongs to the superfamily Empidoidea of the suborder Brachycera, order Diptera. The Dolichopodidae family is widespread in all zoogeographic areas of the planet, without Antarctic. Today approximately 8300 species from 261 genera are described worldwide (Grichanov, 2023). About 700 species are known in Europe. The dolichopodids are a species with small to medium body size (1-10 mm). The color of the body is usually metallic green but some genera, for example, genus Neurigona are with yellow coloration. Most species of the family Dolichopodidae are found in moist habitats: on vegetation around rivers, streams, marshes, lakes, flooded forests, etc. A large number of representatives

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of the genera Medetera and individual species of other genera can be found in dry places. As predators, the species of the family play an important role in the regulation of a number of pests in forests and agroecosystems.

The main purpose of this paper is to indicate the habitat preferences and distribution of some dolichopodid species in the southern, Mediterranean-influenced areas of Bulgaria, as well as in the same areas of Turkey.

Material and methods

The species in this work were collected by means of sweeping net and Malaise traps in different years from 2007 to 2023. The species *Sybistroma discipes* was collected on 17.11.2023 with a sweeping net, leg. G. Zaemdzhikova. After collecting the specimen was put in 95% ethanol and separated from the other insects in the sample in laboratory conditions using a microscope.

Results

The species *Chrysotus hubenovi* Kechev, Naglis, Negrobov, 2022, described from the West Rhodope Mountains from 1100 m altitude (Kechev et al., 2022), was found from Kaloferska Planina Mt. situated in the Balkan Mountains at an altitude of 530 m. The species inhabits humid grasses near river banks.

Chrysotus pennatus Lichtwardt, 1902 is not widespread in Bulgaria but is known with few specimens from several localities, mainly riverside and forest habitats.

Hercostomus chetifer (Walker, 1849) in Turkey was found in humid coniferous woodland (Tonguç, 2023). For Bulgaria the species was found near a small brook in deciduous forests (Kechev, 2021a).

Hercostomus gracilis (Stannius, 1831) is known from two localities in Bulgaria. The species could be found in humid habitats in deciduous forests (Kechev et al., 2014, Kechev, 2021b). In Turkey the species was collected from a wide range of habitats – streams, ponds, humid grassland, etc. (Tonguç, 2023).

Hercostomus tanjusilus Negrobov & Zurikov, 1988 known only from Georgia and Turkey was found in poplar and willow grove habitats (Küçükberber et al., 2017).

Hercostomus thraciensis Kechev & Negrobov, 2015 (Fig. 1) was first described in Bulgaria (Kechev, Negrobov, 2015), collected from the Gradina floodplain forest (situated to the west of Gradina Village) and a humid, wooded and marshy place called Basha (situated to the southwest of the town of Chirpan). In Turkey the species was found in 2017 (Küçükberber et al., 2017) in humid grassland. Grichanov & Freidberg (2018) found *H. thraciensis* in Israel.

Poecilobothrus chrysozygos (Wiedemann, 1817) for Turkey was found in fenlands and humid grasslands (Küçükberber et al., 2017). In Bulgaria the species was reported in the Gradina floodplain forest (Kechev, 2012a).

Figure 1. *Hercostomus thraciensis* Kechev & Negrobov, 2015, habitus.

Poecilobothrus regalis (Meigen, 1824) very abundant species in the investigated area in the lower parts, from 100 to 350 m a.s.l.

Sybistroma discipes (Germar, 1821) (Fig. 2) known in Bulgaria from two localities Markovo Village, situated in the West Rhodope Mountains and Shipkovo Village, in the Balkan Mountains. This study gives a new locality near the town of Gotse Delchev, along the banks of Mesta River.

Sybistroma israelensis (Grichanov, 2000) is known only in Israel and Turkey. In Turkey the species inhabits mixed woodland, humid coniferous woodland and humid grassland (Küçükberber et al., 2017).

Sciapus bellus Loew, 1873 was found in Kremen (473 m a.s.l.) and Dzherovo (275 m a.s.l.) villages with a large number of specimens near a river surrounded by a deciduous forest (Kechev, 2021b).

Known only in Italy, France, Morocco and Tunisia (Grichanov, Negrobov, 2014), *Sciapus costae* Mik, 1890 is an interesting species. It was found in two new localities in Bulgaria (Kechev, 2021a). The species was collected from the Balkan Mountains and Dzherovo village in the East Rhodopes along river banks in deciduous forests.

Sciapus flavicinctus (Loew, 1857) is a common species along the banks of rivers in lower areas of Bulgaria. In Turkey the species was known in the Antalya and Adana provinces (Naglis et al., 2021).

Figure 2. *Sybistroma discipes* (Germar, 1821), habitus.

Teuchophorus chaetifemoratus Pollet & Kechev, 2007 described in Bulgaria (Markovo village, West Rhodope Mts., 300 m a.s.l.) within a cool deciduous forest with clean shallow streams (Pollet, Kechev, 2007). During 2016 another locality was found near Naydenovo Village, situated in Sarnena Sredna Gora Mountain, and the habitat was the same as the first one (Kechev, 2016). In Turkey the species was collected from ponds and humid coniferous woodlands (Küçükberber et al., 2017).

Teuchophorus cristulatus Meuffels et Grootaert, 1990 is a typical Mediterranean species known in Sicily, Bulgaria and Turkey. Tonguc et al. (2010) announced one male specimen of this species from the Asian part of Turkey. In Bulgaria *T. cristulatus* was first recorded (Kechev, 2012b) with three males found on the banks of the Tekirska River in the town of Chirpan.

Other dolichopodids not mentioned above in the list of the investigated species in this study as *Dolichopus griseipennis* Stannius, 1831, *Campsicnemus curvipes* (Fallén, 1823), *Campsicnemus umbripennis* Loew, 1856, *Hydrophorus balticus* (Meigen, 1824), *Rhaphium caliginosum* Meigen, 1824, *Sympycnus pulicarius* (Fallén, 1823), *Sympycnus simplicipes* Becker, 1908, *Syntormon pallipes* (Fabricius, 1794), *Teuchophorus mona-*

canthus Loew, 1859 and *Teuchophorus spinigerellus* (Zetterstedt, 1843) are eurytopic species and could be found in a wide range of habitats and different altitude. For instance, *H. balticus* is collected from sea level to 2000 m a.s.l.

Discussion

Hercostomus thraciensis is one of the most abundant species in spring, inhabiting flooded forests and humid woodlands situated along the banks of the Maritsa River in the Upper Thracian Plain. The adults are active in April and May. A large number of specimens were collected at the end of April and at the beginning of May. During the remaining months of the year, the species is not caught. As *H. thraciensis, P. regalis* is also a wide-spread species in this area. Found mostly around open sunny places like ponds and riverbanks in Bulgaria. In Turkey it was reported in streams, fenlands, reedbeds, humid mixed woodland, etc.

On the other hand, the species *H. chetifer* is rare for the investigated area. As mentioned above it was discovered in humid coniferous woodland in Turkey and in Bulgaria it is known with one male specimen collected near a small brook in a beech forest.

The Long-legged flies have been intensively studied in Bulgaria and Turkey for the last two decades. More than 100 species were reported for the fauna of Bulgaria and the number is the same for Turkey. Several new species were described for science. Three check-lists were published (Kechev, 2005, Tonguç, et al., 2016, Kechev, et al., 2020).

In conclusion, Dolichopodidae as a species-rich family is promising for future research in the eastern Mediterranean region. It is possible that more new species will emerge for the fauna, and as predators, it is good to study their habitats and the relationship with other organisms.

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